

A CONCISE MANUAL  
OF  
**Platen Presswork**

BY F. W. THOMAS

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## PREFACE

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Believing that there should be within the reach of every platen pressman a thorough yet concise treatise covering all of the essentials of the theory and practice of his work, and believing that such a work would meet with a cordial reception from workers who wish to add to their proficiency and from employers who wish to assist their platen pressmen in acquiring more correct methods, the author has endeavored to meet this want with what is here written.

It is published with the earnest hope that it may prove a practical help in the every-day work of the platen pressmen whom it reaches.

F. W. THOMAS.



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# PLATEN PRESSWORK.

BY F. W. THOMAS.

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THE average platen pressman is a graduate feeder who has acquired his knowledge of making ready by haphazard observation of the older hands. He has learned to go through the motions, often without any competent instruction whatever in the reasons for them, and often has no appreciation of the principles involved in producing good presswork.

These articles are written with the hope of aiding many young pressmen and others, who are anxious to advance, by giving practical methods and at the same time explaining the reasons or theory for their use, so that the pressman, understanding the whys and wherefores, may be more capable of overcoming the many difficulties which confront him, and which vary so much in detail that it is impossible to cover all of them in any article.

Making ready is largely a matter of correcting imperfect conditions. It will be of advantage, therefore, to consider what ideal conditions are, in order that we may better study how to remedy ordinary conditions so as to approximate the ideal. If all type, rules and cuts were new and of absolutely uniform height; if the bed and platen came together perfectly

true and without any spring, if rollers and ink were perfect; then the only make-ready necessary would be the overlaying of the extra heavy portions of the printing — for a flat surface is not a correct printing-surface except when the form consists entirely of type, and the same kind of type. The moment the form consists of some light type and some heavy, or contains cuts having some portions darker than others, just that moment must the printing-surface, theoretically at least, become uneven, being made higher for the heavy portions so as to give those parts more impression.

The conditions then that we must strive for, in order to obtain perfect printing, are: first, an adjustment of the press which will result in a square, even impression; second, a uniformly level surface to the type-form; third, a make-ready graduated in thickness so as to give a proper relative impression to all portions of the form; fourth, a proper condition and set of the rollers, and, fifth, suitable ink.

With these items properly taken care of, practically perfect printing will result. If the work is defective in any way it is the pressman's best plan to study carefully just which of these essentials is being violated, so as to apply the remedy in the right place. A great deal of time is wasted in making ready by failure to follow this plan intelligently. I have seen pressmen work away at the impression, when a little observation and thought would have shown them that the real source of the trouble lay in the lack of proper inking, and I have seen others putting on more and more ink when the real fault was lack of impression. It is a

great rule to think while you work. Never putter aimlessly at remedying defects. Locate the cause; then you can work intelligently and rapidly.

Taking up more in detail the first essential, brings us to the consideration — as primarily in order — of the subject of

#### IMPRESSION.

Considered theoretically, correct platen impression is where the platen advances, in the final movement, in a direct slide to the bed, touching with equal pressure at every point at the same instant. In this, the Universal or Colt's Armory type of press, it is necessary to set the impression-screws but once, and afterward the whole impression can be regulated for all ordinary needs by the action of the adjustable latches connected with the throw-off device, or by a slight variation in the amount of tympan used.

In the "clam-shell" style of press, the platen is hinged close to its lower edge. In this type of press it is necessary to raise the screws on the upper edge of the platen when any considerable increase is made in the amount of tympan, or, if the impression is increased by means of the screws, the upper ones must be advanced more than the lower ones. Some makes of presses using the "clam-shell" motion, notably the Golding and the Perfected Prouty, have special devices for tilting the platen to overcome this defect.

In the Gordon type of press this difficulty is reduced to almost nothing by carrying the hinging-point nearly to the floor. This brings the top and bottom of the

platen and bed together with so nearly a sliding motion that it is seldom necessary to change the screws. This is another of those things, however, that pressmen differ about; but if you will go into any good-sized shop, equipped with a proper complement of presses, where all jobs can be put on machines adapted to them, there you will find an iron-clad rule that the impression-screws are to be let alone. On the other hand, go into some small shop where they try to run everything, from an envelope-corner to a 10 by 15 bill, on a 10 by 15 Gordon press, and there you will perceive the man who is always "monkeying" with the impression-screws. And he is all right in doing it, not because it is the right way, but because he is doing with his press what it never was built to do, and he has to resort to really incorrect makeshifts to do the work. If a pressman has to do such a wide variety of work on one press of the Gordon type, he will doubtless have to change the impression-screws, but he will be a lucky man indeed if he succeeds in keeping the platen true with the bed even a small part of the time. The right way is to have each press adjusted for the class of work that should go on it, and then never touch the screws. And in this connection it will not be amiss to caution pressmen not to put too heavy forms on their platen presses. Manufacturers delight in claiming that their presses will print a single line or a full form. And probably they will. You can doubtless lift five hundred pounds, but it will strain your back. A solid form 10 by 15 inches takes about five tons pressure to print it. Now look at the quarter-medium Gordon, and ask

yourself if it ought to be expected to deliver eighteen hundred or fifteen hundred, or even one thousand, five-ton blows in an hour. A good, safe rule is to put every platen job on a press with a chase twice the size of the actual form, if possible. If you are compelled to put on a full form, use a fairly soft tympan, plenty of ink, as light an impression as possible, and run your press at a moderate speed only.

All platen-press forms should be locked a little below the center of the chase.

#### TYMPAN.

The amount and character of tympan to be used for each job is a matter which calls for careful consideration.

The soft tympan, being more elastic, accommodates itself somewhat to the inequalities of the form and less making ready is required than with a hard tympan. It is, however, much more wearing on the type, especially on long runs. I believe it should be used only on dodgers and the cheapest class of work, or where the worn, rounded condition of the face of the type renders it necessary.

An especially soft tympan, as a sheet of blotting-paper or a thin rubber blanket, topped with a number of sheets of print, can be employed to advantage in printing envelopes when the printing runs across the gummed portions, as this will tend to save the type if it strikes a hard lump of mucilage.

Hard tympan is the right thing for all good work — one sheet of hard pressboard and three to five sheets of good print, with a top sheet of manila, or, better yet, all manila instead of part print. Such a tympan stands up for long runs. It does not wear the face of the type off rounding. It shows less impression on the back of the sheet than does the soft tympan and gives a cleaner, sharper print. In printing on linen and other harsh papers an especially hard tympan is necessary. In taking a first impression, care should be taken not to have on too much tympan-paper, as it only injures type and strains the press, and an impression taken too strong is not as good a guide for making ready as one that is a little light. Start light, and add tympan until the general run of the form has sufficient impression.

The tympan consisting of one pressboard and five or six sheets of manila, as recommended above, is for presses of the Gordon type, on which the impression is not sufficiently accurate and rigid to make it a good practice to use a still harder tympan.

On presses of the Universal or Colt's Armory type, where the bed and platen come together absolutely true, and in which the impression is more rigid, I would dispense altogether with the pressboard and use about five thicknesses of (24 by 36 35-pound) manila. On this type of machine the rollers are set more accurately than on most Gordon presses, and, so far as possible, all make-ready, except cut overlays, should be by means of underlays.

Having the impression properly adjusted and a suitable tympan selected, the next step is to bring the face of the form to a uniform height by

## UNDERLAYING.

This consists in applying varying thicknesses of paper behind portions of the form, for the purpose of bringing type, rules and cuts that may be low, up to the general level of the whole form. Type that is old and worn needs underlaying, for, if it is badly worn, it will not be thoroughly inked by the rollers, as the newer and higher type will serve to hold the rollers away from the worn letters, which really need good roller-pressure more than the new type. This is especially true if the worn type or rule is very close to other matter, and still more so if the rollers have lost some of their suction. Good rollers will cover many such defects, but if they are hard, then especially must the greatest care be exercised to underlay the form to a perfectly even surface. Many times cuts are low in the center or at a corner, or on one whole side. An underlay is the only logical remedy for these defects, for they are defects in the leveling of the form, and should be remedied by a plan that will correct both the uneven impression and the uneven inking at the same time. It is a curious thing, but a fact, that an inch circle of paper behind the center of a wood-base cut four inches square will increase the impression of the center while making no perceptible difference on the edges, and this increase in impression is gradual from

the center out, which result would be very difficult to obtain by overlaying. Some pressmen advocate underlays for pretty much everything; others contend that overlaying is the only thing. The contention is a good deal like the rivalry of the Homeopaths and Allopaths, and we must conclude that in presswork, as in medicine, there are good points in both systems. The writer's belief is that the true object of underlaying is to bring the form to a level surface and that overlaying is to provide for that variation in impression necessitated by the varying character of different portions of the form, including the bringing up of the solid portions of the cuts. Undoubtedly this is the correct theory, and, as a rule, I believe it to be the best plan to follow in practice.

If a line of type or cut is very low, it will not ink, and must be brought up by an underlay; but if it is a very heavy line and needs still more impression, it is manifestly incorrect to further underlay it, as that may cause it to hold the rollers off from adjoining lighter type. The additional impression should be given by overlaying on the tympan. In practice, it may make no difference whether a tissue-paper is placed behind the form or on the tympan, but the influence of habit is powerful, and a habit of doing things correctly is of great value to a workman. The pressman who always chooses either an underlay or overlay according to correct principles, whether it is a cardboard or tissue-paper, is forming a habit which will go far toward making him a better workman.

A form requiring any amount of make-ready, if prepared entirely by overlays, will not print uniformly

for a long run, as those portions of the tympan having the greatest thickness of overlays will pound down most and ultimately show up light, while, if the excess impression is applied in the shape of hard paper or hard cardboard underlays, this will not occur. Then, also, too many overlays are more than apt to make the tympan baggy and loose in spots, causing slurring. One of the most frequent necessities for underlaying arises in tabular work where the rules are high. In this and in other cases where the underlaying is intricate and needs to be accurately done it is better, and will save time, to take the form out of the press, stand it on edge where it can be handily gotten at, and paste the underlays on carefully with a little flour paste. A lick of the tongue on a piece of paper is a poor expedient. The underlay is likely to come off or work out of place while the job is running and result in a lot of defective work. Mucilage is bad, too, as it hardens and forms a coating on the feet of the type, which does not come off with ordinary washing and which makes them high in the next job. The custom of pasting on underlays simply by loosening the chase-hook and tipping the chase forward is a pernicious one, for, while it is doubtless well enough in some cases, it soon becomes a habit, and it is simply impossible to place complicated underlays accurately in this fashion, and no end of time is wasted in moving them when wrongly pasted on. On most makes of job presses there is no provision as there is on cylinder presses for setting the rollers so as to bear with varying pressure on the type, and when rollers are very old and shrunken it may be necessary

to put a sheet of paper or even a cardboard sheet behind the whole form. Of course, if the impression has already been adjusted, a corresponding decrease must be made on the tympan. This is, however, a makeshift. New rollers would be a better remedy. While speaking of the matter of leveling up the form, I want to suggest one exception, and that is half-tone plates, especially if they are vignetted. It is my experience that a half-tone prints best with light roller-pressure, and I favor having them a trifle less than type-high and making up this discrepancy by extra overlaying on the tympan, not by an underlay. This leaves the cut a little lower than the balance of the form, and the rollers touch it less heavily. There is less tendency for the fine interstices of the cut to fill up with ink and to print smutty. This is particularly true of the edges of vignetted half-tones. This plan also assists in the final make-ready, as will be explained more in detail later.

When the form has been brought to a level surface by means of careful underlaying the next step is

#### OVERLAYING.

For overlaying type and line-cuts, use tissue, French folio, or thin manila, or book paper, according to the amount of extra impression required. Many etchings, and practically all half-tones, need "cut overlays" to bring up the darker portions. For this work thin French folio is best, and for the relatively small cuts ordinarily run on platen presses it is rarely advantageous to use more than two thicknesses of folio — one

sheet on the medium shadows and an additional one on the very heavy places.

These overlays should be pasted lightly on the very bottom sheet, the upper sheets being loosened from the top tympan-bale and rolled down, and an impression taken on this lower sheet to use as a guide in securing the overlays, some extra, loose sheets being temporarily placed under this bottom sheet when taking this impression, to compensate for the sheets turned down. The sheet of pressboard should be taken from beneath and put on top of the sheet with the overlays on it, and the extra top sheets that were rolled down pulled up over this. It is not necessary to shift the pressboard above the overlays with type-forms, but with half-tones and most other engravings the edges of the overlays are likely to show in the printing unless this is done. I have stated that in securing an impression on the bottom sheet of the tympan the upper sheets should be loosened from the *top* tympan-bale and rolled down, because that is the method I have found most in vogue, and most pressmen claim that there is danger of losing the register, if the sheets are loosened from the *bottom* bale after the feed guides have been set.

Personally, I do not think so. Loosening the sheets from the top bale and rolling them down makes a clumsy roll at the lower edge of the platen; the sheets rolled down are likely to become creased or spoiled in taking the impression for overlaying, and it is an awkward proceeding at best. In my own pressroom we invariably loosen the top sheets from the *bottom* bale. They can then be turned off from the face of the platen

entirely, though still secured by the upper tympan-bale. In this way, the sheets, when put back, need not show a wrinkle; and, though we do a great deal of very close register work, we have no trouble with the gauges being drawn out of position in this way. An absolutely taut tympan is one of the prime essentials for good presswork.

The impression on the bottom tympan-sheet should never be taken, nor any intricate overlaying done, until the make-up and spacing of the form has been O. K.'d. Overlays, to be of any use whatever, must register exactly with the position of the form for which they are intended.

In the first part of these articles I advocated having half-tones a little less than type-high, and compensating for it on the tympan. In the case of vignetted half-tones worked in with type-forms, I have noticed that if the plates are flush type-high, it is necessary not only to overlay the dark portions of the cut, but also to cut away on the tympan below the vignetting, as the natural tendency of the sheet that is being printed to bulge up around the edge of the cut will result in too heavy an impression on the vignetting. Even with this precaution, although all actual impression is removed from the vignetting, the paper still touches that portion of the cut more or less roughly, and is very liable to leave a ragged line at the extreme edges. The beauty of a vignetted half-tone lies in the delicate shading away of the edges. By having the cut a little low, and building up on the tympan to meet it, the paper is

forced out against the solid portions of the cut, but is not pressed against the edges at all.

In printing small half-tones on presses of the Universal or Colt's Armory type, and using a tympan of five sheets of hard manila paper, it is seldom advantageous to use anything more than one thickness of tissue paper for *cut* overlays. Further overlaying or "patching" as it is technically called, will, of course, be necessary to remedy any hollow spots in the cuts, but a single tissue is usually sufficient for a cut overlay and that only on the darkest parts of the cut. I have found this method secures better results than more elaborate overlays, or those made of heavier paper.

The matter of cut overlays is often much overdone in platen presswork by pressmen who are prejudiced by the heavier overlays used to advantage in cylinder presswork.

It is often necessary to cut away the tympan in places to keep high rules, cuts, etc., from showing an undue impression, but this should be done as little as possible. High cuts had better be planed off on the bottom, especially if very high, for even if the tympan is cut out to remedy the matter of impression, they are still too high in the form and may fill up with ink, or, if they have sharp corners, may cut the rollers.

#### ROLLERS.

Some job presses are provided with two sets of roller-wheels, one smaller than the other, to be used when rollers become shrunk. But most presses are not so equipped, and it is questionable if the idea

amounts to much. When rollers have shrunk enough to need such a remedy they have probably lost their suction, and the best thing to do is to get new ones.

Rollers should be renewed every spring and fall at least. Hard rollers for summer and soft for winter. The pressman should try to save his rollers as much as possible. *New rollers should not be used on damp days.*

A roller that does not take ink is "green," and needs to be "seasoned." Seasoning is not a matter of days or weeks but of atmospheric conditions. In dry and especially in cold, dry weather, evaporation is rapid and rollers season quickly. In damp, humid weather they do not season at all, but get still "greener," unless kept covered with grease or ink.

If your rollers are new and green they should be kept covered with ink at night, in wet weather, and in dry weather washed off so the air can get at them at night.

If your rollers are old and dry, keep ink on them on the cold or dry nights, but clean them before damp nights and they will absorb moisture.

An easy way to remember this is to bear in mind that, practically speaking, a wet (green) roller wants a dry day and a dry roller wants a wet day.

All forms containing light-faced rules should, if possible, be locked so that rules run crossways of the press, parallel with the rollers, as in that way they are much less likely to cut the rollers. As soon as rollers get cut it is impossible to clean them well enough to run delicate tints or bright red successfully. Rollers should be run slowly when using stiff inks in hot

weather, for the friction generated by fast running is great, and will melt down the rollers. Many valuable hints on the care of rollers can be obtained from the pamphlets issued by rollermakers.

Never stop the press with the rollers standing on the type. If left too long, the type will leave permanent dents in the rollers. Nor should they be allowed to stand for any length of time resting on the disk, as a flat streak will be the inevitable result.

Be sure, before putting ink on the press or in the fountain, that every particle of dirt and lint is removed, otherwise it mixes with the ink, gets into the fine type or cuts and makes them print muddy, or is deposited on the solids of cuts and large letters and makes them look speckled.

When using slow-drying inks, the rollers will often be benefited by leaving the ink on them over night, as explained before, but extra quick-drying colored inks should not be left on the rollers.

Always be extra careful to clean well the ends of the rollers, where they run on the bearers.

#### INK.

The primary rule for the selection of the right grade of ink for all ordinary jobs is, hard ink for hard paper and soft ink for soft paper. Hard, stiff ink is the thing for hard paper, for such stock requires a heavy impression, and a soft ink would simply be squeezed out from between the surface of the type and the paper, and make a ragged edge to every letter. Stiff ink can be run heavier, as is necessary on hard paper, and yet not

show up ragged on the edges of the letters. Soft ink is used on soft paper, and for printing on coated papers, as it works easier, dries into the paper quicker and does not pick the coating off surfaced papers.

The careful pressman will keep his cans covered when not in actual use, and will never have more than one can of the same kind of ink open at one time. He will carefully remove all skin that has formed over the ink before putting it in the fountain. Colored inks that are seldom used can be almost entirely prevented from skinning over and drying out, by keeping half an inch of water in the can on top of the ink. Most inks that are too stiff, or when too cold to work well, can be reduced and made to work more freely by the addition of a little kerosene oil. Very little is needed and it should be thoroughly mixed with the ink before it is put on the press, if the best results are expected. It will, however, frequently dull the brilliancy of bright colors, and for these, special reducing-compounds should be purchased from the inkmaker.

As a matter of fact, the ink should be bought for the work that is to be done with it, and not "doped" by the pressman. Inkmaking is an art of which the printer knows little, and usually he spoils more ink with his mixtures than he saves. The chemical composition of inks varies and there is no magic compound that will reduce them all with equal satisfaction. If ink is not as it should be, it ought to be returned to the maker. He knows how to fix it. Beyond a mild dose of coal oil, vaselin, regular reducing-compounds, linseed oil, or dryer, I do not believe in the pressman doctoring his

inks, and even these remedies should be used sparingly by any but the most experienced.

In applying ink to the press, it is best to use a small hand-roller, the ink being first distributed on a slab or piece of glass. For small jobs, it may do to put on a little at a time with the ink-knife, and it should always be applied to the extreme left-hand side of the disk. If good work is desired, however, especially if the run is long or the form is heavy, it is better to use the fountain. Care should be exercised to see that the fountain-blade set-screws are so adjusted as to give a uniform flow of ink.

In adjusting the set-screws of a long fountain, the center screws should be tightened first and the other screws tightened gradually from the center to each end, otherwise the blade is likely to become buckled. If a fountain is to work properly it must be kept thoroughly clean, not only the inside but the bearings, and when it is put together be sure that the end bearings are closed up snugly. Otherwise the roller is not securely held and a perfect regulation of the ink is impossible.

#### FEEDING.

Rapid, accurate feeding should be the ambition of every platen pressman. It is largely a matter of practice — and a knack which can not be taught on paper, but a few hints will not be out of place. Gauges should be so placed as to facilitate easy feeding, the ones for the lower edge of the sheet not too close to the corners. The surface of the tympan should be clean and smooth, and an end-gauge should always be used. This last

may bring a smile, but I have seen any number of printers, particularly in small towns, feeding to a mark. Cards, envelopes and the like should be fed in straight, but sheets of fair size should be "flopped," that is, laid on the feed-board wrong side up and turned as they are being fed into the press. All work should be fed first to the bottom gauges and then slid over to the end-gauge, never jabbed against all of these gauges at once. The feeder should acquire the knack of placing his sheets to the gauges lightly. Dirty finger-marks are an abomination. The feeder's hands should be kept clean, and care should be taken in removing sheets from the press not to touch the printing. If the open space is small or the sheets slippery, a small piece of sandpaper fastened to the end of the left forefinger will be found a great help. A soft rubber thimble is better still.

The throw-off lever is a convenience that should not be overworked. Try to acquire a good, even, unfailing "motion," as does the expert compositor. Let the right hand be ready with the sheet to place it in the press the instant the platen is well open. There is then abundant time for careful feeding, without getting rattled and constantly throwing-off. Always feed every job accurately whether it seems to need it or not. Habit is a great thing.

#### SETTING THE FEED-GAUGES.

The writer is strongly in favor of the use of quads for feed-gauges, secured to the tympan by the best liquid glue. They possess the advantage of staying

where they are put and do not injure any but the top sheet of the tympan, and by their use all the sheets of the under tympan are left free for the insertion of other sheets, or a card, or overlays, whenever desired. Any kind of pin that perforates the tympan is likely to interfere with this free separation of the sheets, spoil the under sheets by making holes in them, and is more than likely to make a bulge in the tympan, which should lie absolutely flat. The only objection to quads is that they can not readily be moved and this I consider an advantage, for gauges should not be moved. They should be set right in the first place. Too many pressmen set them by guess, and then spend no end of time moving them, with attendant loss of stock and mutilation of the tympan, and with considerable uncertainty as to their correct position when set. The quickest way to set gauges is to select the longest straight line in the job and draw a pencil line exactly in line with one edge of it, letting this pencil line be as long as the sheet to be printed. Then measure down from this line and mark the point where the lower edge of the stock should come, and there rule a second line exactly parallel with the first line. Don't guess at making it parallel, but measure an equal distance down at each *extreme end* of the first line, and rule the second line through the points so marked. Set the quads on this line and they will be all right. If there is any doubt about where the end-gauge should go, mark it first and then glue on a quad. If the gripper needs to extend over the left margin, use a piece of hard cardboard with the end bent up for an end-gauge.

## CARE OF THE PRESS.

Keep your press clean and well oiled every day, but a little in each hole, not in streams running down the machine and onto the floor. Look it over now and then to see that no bolts or nuts are coming loose. Keep the roller-ways and roller-wheels clean and free from oil. If your press has a divided disk, don't let the two portions become stuck together with old, dry ink. Some of that old ink will work out into light colors and spoil them. *Above all, keep the surface of the bed and platen absolutely clean.*

## BEARERS.

Bearers on cylinder presses are supposed to assist in sustaining the weight of the cylinder and to make the bed and cylinder run in unison. From this fact some pressmen seem to think that bearers have some such office to perform on a platen press. Under very exceptional circumstances, such as a heavy cut worked considerably out of center, or in using an old, rickety, broken-down press, it may be necessary to use bearers on a platen press for the purpose of securing a uniform impression or preventing the press from slurring, but any advocacy of bearers that actually sustain impression, for the ordinary run of work on platen presses, I believe to be most pernicious. The function of bearers on platen presses is to insure the rollers turning, both when they first touch the form and as they run over it. Without them the rollers are likely to slide instead of rolling, especially before coming to the type. Then they bump against the type, and the jar of starting

them suddenly fills up the edges of the form with ink, and often cuts the rollers. Bearers should be smooth and never above type-high, with no sharp corners to cut rollers. They should be locked at the extreme ends of the chase, and tympan should not extend so as to touch them. They should be cleaned as carefully as the form. Metal ones are best, as they are easier to clean and are more accurate.

#### SOME SPECIAL TROUBLES.

In concluding these papers, I wish to speak of some special matters. First, one of the pressman's greatest trials, slurring.

The primary cause of this is always a movement of the sheet in contact with the type, either just at the time of, just before, or just after, the moment of impression. If the tympan is absolutely taut, if the sheet to be printed lies perfectly flat upon it and is held so during the impression, and the form is impressed against it firmly without any spring in any portion of the form, and without any side motion, and then leaves the sheet clean, there can be no slur possible. Slurring is always caused by a violation of some one of these ideal conditions. Technically speaking, it is practically never caused by the ink, but it is true that there are many kinds of stock very difficult to make lie absolutely flat on the tympan, and often such stock will not show a slur when stiff ink is used, but will if the ink is very thin. It is, therefore, advisable to use inks that are fairly stiff on stock that does not lie flat. The indi-

vidual causes of slurring are many. If the slur is made just before the point of impression, it is because the stock does not lie flat and bulges against the type, and, as the gradually increasing pressure forces it flat, there is a slight motion of the sheet that makes the slur. Anything that will hold the sheet flat on the tympan will stop the slur. Extra gripping-fingers on the inner margins, strings across the grippers over the place where the bulge comes, if at the left end of the sheet a cardboard glued in the margin of the tympan and extending over as close as possible to the point where the slur shows, or a piece of pressboard glued to the gripping-fingers and extending into the troubled spot, all are schemes used with more or less success, according to circumstances.

If the slur comes on the impression, which is rare, it is either the result of an uneven setting of the impression-screws, or a badly worn press. The former can readily be remedied. The latter can only be helped by the use of impression-bearers. A form poorly locked up may bulge and cause a slur at each impression as it is forced back against the bed. In that case send it back to the composing-room.

If the slur is caused when the sheet leaves the type, it is probably because the grippers have not sufficient hold to pull the sheet away all at once, and it somewhat half pulls and half peels off with a dragging motion that brings the slur. Fine sandpaper, glued sand-side up on the tympan under where the grippers touch the sheet, will increase their hold. Strings through the margins, and pieces of cardboard glued to the tympan

and extending into open portions of printing are the most-used expedients.

If the ink is very stiff, thinning it will make the paper leave the form easier and thereby tend to prevent the slur, but care must be taken not to get it too thin, especially if the stock is at all inclined to bulge.

Type that is badly filled up with old, dried ink will frequently give the appearance of a slur, the accumulated ink in and around the letters receiving fresh ink from the rollers and in turn leaving some of it on the printed sheet. The very first thing to do, in making ready such a form, is to clean it thoroughly with good lye.

The filling up of cuts and shaded type is a source of constant aggravation. The most common causes are, poor cleaning of the press, gritty or skinny ink, too much impression, too soft a tympan; and last, but not least, cut up rollers, from the cracks in which little particles of roller-composition are constantly working into the ink and thence into the cuts. The remedies for each of these causes are self-evident. It may be well, however, to say that even with good rollers, good ink and the greatest care, it is still good practice to clean out half-tone forms every one or two thousand impressions, if clear, sharp work is desired.

Cuts are sometimes filled with old dried ink which will not come off with lye, benzine, etc., and which, especially in half-tones, gives the plate a dull, muddy or worn-out appearance. If such cuts can not be cleaned with the ordinary materials, use alcohol in which has been dissolved as much as it will hold of white caustic

potash. Do not scrub with it as with lye, but simply float enough over the cut to cover the surface of it, and after a minute or two, clean it off. It is enormously powerful in removing ink but will not injure type or cuts if used as above.

Offset on the tympan, when working the second side of a job, can usually be prevented by rubbing the tympan with a little kerosene or machine oil. If the sheets offset on each other as they come from the press, it may be there is too much ink on the job. If the work is such that the color can not be kept up bright and clear without offset, it should be slip-sheeted.

Never take an impression immediately after a form has been put in the press without looking carefully to see that the grippers will not strike the type. Even if the form has been removed to make but a trifling correction, watch the grippers when you run the press down first time. It is a matter that you can not be too sure about.

Good presswork makes or mars the whole product of every shop. The good pressman is the one who works rapidly and intelligently, but with infinite pains, and who does not relax his vigilance with the completion of the original make-ready, but maintains it until the run is finished.

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